

WHAT IS CLAIMED IS:

1. An ink-jet printing method for performing printing by scanning an ink-jet printhead over a print medium, said ink-jet printhead having orifices for discharging
5 ink droplets of a first volume and orifices for discharging ink droplets of a second volume smaller than the first volume, said method comprising:
 - a selecting step of selecting a mode, which is to be used in printing, from a first mode in which
10 printing in a prescribed area on the print medium is completed in a predetermined time, and a second mode in which printing in the prescribed area is completed in a time longer than the predetermined time;
 - a data generating step of executing data
15 processing and generating print data in accordance with the mode selected; and
 - a printing step of carrying out printing by discharging ink toward the print medium from the ink-jet printhead based upon the print data generated;
- 20 wherein in said data generating step, data processing is executed in such a manner that a number of ink droplets of the second volume used in printing an area of a high density or high saturation in regard to a prescribed color in the first mode will be less
25 than a number of ink droplets of the second volume used in printing this area in the second mode.

2. The method according to claim 1, wherein said data generating step is such that in a case where an area of maximum density or maximum saturation with regard to the prescribed color is printed in the first mode, data processing is executed in such a manner that printing of said area will be carried out without using ink droplets of the second volume.
3. An ink-jet printing method for performing printing by scanning an ink-jet printhead over a print medium, said ink-jet printhead having orifices for discharging ink droplets of a first volume and orifices for discharging ink droplets of a second volume smaller than the first volume, said method comprising:
- a selecting step of selecting a mode, which is to be used in printing, from a first mode in which printing in a prescribed area on the print medium is performed by scanning the ink-jet printhead a predetermined number of times and a second mode in which printing in the prescribed area is performed by scanning the ink-jet printhead a number of times greater than the predetermined number of times;
 - an image processing step of executing image processing that conforms to the mode selected; and
 - a printing step of carrying out printing by discharging ink toward the print medium from the ink-jet printhead based upon data that has undergone the image processing;

wherein said image processing step is such that

(A) in a case where the first mode has been selected, image processing is executed in such a manner that a maximum-density area, which is an area of maximum

5 density with regard to a prescribed color, or a maximum-saturation area, which is an area of maximum saturation with regard to a prescribed color, will be printed using the ink droplets of the first volume rather than the ink droplets of the second volume, and

10 (B) in a case where the second mode has been selected, image processing is executed in such a manner that the maximum-density area or maximum-saturation area will be printed using both the ink droplets of the first volume and the ink droplets of the second volume.

15 4. A printing system comprising an ink-jet printing apparatus and a host device for transmitting print data to said printing apparatus, wherein said printing apparatus performs printing by scanning an ink-jet printhead over a print medium, the printhead having

20 orifices for discharging ink droplets of a first volume and orifices for discharging ink droplets of a second volume smaller than the first volume, and said printing apparatus is capable of printing in either a first mode in which printing in a prescribed area on

25 the print medium is completed in a predetermined time, or a second mode in which printing in the prescribed

area is completed in a time longer than the predetermined time;

said host device including:

mode selecting means for allowing a user to
5 select a mode, which is to be used in printing, from the first and second modes; and

data processing means for executing data processing and generating print data in accordance with the mode selected by said mode selecting means;

10 said data processing means executing data processing in such a manner that a number of ink droplets of the second volume used in printing an area of a high density or high saturation in regard to a prescribed color in the first mode will be less than a
15 number of ink droplets of the second volume used in printing this area in the second mode.

5. The system according to claim 4, wherein in a case where an area of maximum density or maximum saturation with regard to the prescribed color is printed in the
20 first mode, said data generating means executes data processing in such a manner that printing of said area will be carried out without using ink droplets of the second volume.

6. A printing system comprising an ink-jet printing
25 apparatus and a host device for transmitting print data to said printing apparatus, wherein said printing apparatus performs printing by scanning an ink-jet

printhead over a print medium, the printhead having
orifices for discharging ink droplets of a first
volume and orifices for discharging ink droplets of a
second volume smaller than the first volume, and said
5 printing apparatus is capable of printing in either a
first mode in which printing in a prescribed area on
the print medium is performed by scanning the ink-jet
printhead a predetermined number of times and a second
mode in which printing in the prescribed area is
10 performed by scanning the ink-jet printhead a number
of times greater than the predetermined number of
times;

said host device including:

mode selecting means for allowing a user to
15 select a mode, which is to be used in printing, from
the first and second modes;

image processing means for executing image
processing that conforms to the mode selected by said
mode selecting means; and

20 means for transmitting data that has undergone
the image processing to said printing apparatus; and

said printing apparatus including printing
control means for carrying out printing by discharging
ink toward the print medium from the ink-jet printhead
25 based upon the data transmitted;

wherein the image processing means of said host
device executes image processing in such a manner that

(A) in a case where the first mode has been selected, a maximum-density area, which is an area of maximum density with regard to a prescribed color, or a maximum-saturation area, which is an area of maximum saturation with regard to a prescribed color, will be printed using the ink droplets of the first volume rather than the ink droplets of the second volume, and (B) in a case where the second mode has been selected, the maximum-density area or maximum-saturation area will be printed using both the ink droplets of the first volume and the ink droplets of the second volume.

7. An ink-jet printing apparatus for performing printing by scanning an ink-jet printhead over a print medium, the printhead having orifices for discharging ink droplets of a first volume and orifices for discharging ink droplets of a second volume smaller than the first volume, and said apparatus being capable of printing in either a first mode in which printing in a prescribed area on the print medium is completed in a predetermined time, or a second mode in which printing in the prescribed area is completed in a time longer than the predetermined time, said apparatus comprising:

mode discriminating means for discriminating which of the first and second modes has been set;

converting means for converting entered image data to print data in accordance with the mode discriminated by said mode discriminating means; and printing control means for carrying out printing by discharging ink toward the print medium from the ink-jet printhead based upon the print data;

said converting means performing a data conversion in such a manner that a number of ink droplets of the second volume used in printing an area of a high density or high saturation in regard to a prescribed color in the first mode will be less than a number of ink droplets of the second volume used in printing this area in the second mode.

8. The apparatus according to claim 7, wherein in a case where an area of maximum density or maximum saturation with regard to the prescribed color is printed in the first mode, said converting means executes the data conversion in such a manner that printing of said area will be carried out without using ink droplets of the second volume.

9. An ink-jet printing apparatus for performing printing by scanning an ink-jet printhead over a print medium, the printhead having orifices for discharging ink droplets of a first volume and orifices for discharging ink droplets of a second volume smaller than the first volume, and said printing apparatus being capable of printing in either a first mode in

which printing in a prescribed area on the print medium is performed by scanning the ink-jet printhead a predetermined number of times and a second mode in which printing in the prescribed area is performed by scanning the ink-jet printhead a number of times greater than the predetermined number of times, said apparatus comprising:

mode discriminating means for discriminating which of the first and second modes has been set;

10 image processing means for executing image processing that conforms to the mode discriminated by said mode discriminating means; and

printing control means for carrying out printing by discharging ink toward the print medium from the ink-jet printhead based upon data that has undergone the image processing;

wherein said image processing means executes image processing in such a manner that (A) in a case where the first mode has been selected, a maximum-density area, which is an area of maximum density with regard to a prescribed color, or a maximum-saturation area, which is an area of maximum saturation with regard to a prescribed color, will be printed using the ink droplets of the first volume rather than the ink droplets of the second volume, and (B) in a case where the second mode has been selected, the maximum-density area or maximum-saturation area will be

printed using both the ink droplets of the first volume and the ink droplets of the second volume.

10. A method of generating print data for use by an ink-jet printing apparatus that performs printing by scanning an ink-jet printhead over a print medium, the printhead having orifices for discharging ink droplets of a first volume and orifices for discharging ink droplets of a second volume smaller than the first volume, said method comprising:
- 10 a selecting step of selecting a mode, which is to be used in printing, from a first mode in which printing in a prescribed area on the print medium is completed in a predetermined time, and a second mode in which printing in the prescribed area is completed in a time longer than the predetermined time; and
- 15 a data generating step of executing data processing and generating print data in accordance with the mode selected;
- wherein in said data generating step, data processing is executed in such a manner that a number of ink droplets of the second volume used in printing an area of a high density or high saturation in regard to a prescribed color in the first mode will be less than a number of ink droplets of the second volume used in printing this area in the second mode.
- 20 11. The method according to claim 10, wherein said data generating step is such that in a case where an
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area of maximum density or maximum saturation with regard to the prescribed color is printed in the first mode, data processing is executed in such a manner that printing of said area will be carried out without using ink droplets of the second volume.

12. A method of generating print data for use by an ink-jet printing apparatus that performs printing by scanning an ink-jet printhead over a print medium, the printhead having orifices for discharging ink droplets of a first volume and orifices for discharging ink droplets of a second volume smaller than the first volume, said method comprising:

a selecting step of selecting a mode, which is to be used in printing, from a first mode in which printing in a prescribed area on the print medium is performed by scanning the ink-jet printhead a predetermined number of times and a second mode in which printing in the prescribed area is performed by scanning the ink-jet printhead a number of times greater than the predetermined number of times; and

a data generating step of executing image processing that conforms to the mode selected and generating print data;

wherein said data generating step is such that (A) in a case where the first mode has been selected, image processing is executed in such a manner that a maximum-density area, which is an area of maximum

density with regard to a prescribed color, or a maximum-saturation area, which is an area of maximum saturation with regard to a prescribed color, will be printed using the ink droplets of the first volume rather than the ink droplets of the second volume, and (B) in a case where the second mode has been selected, image processing is executed in such a manner that the maximum-density area or maximum-saturation area will be printed using both the ink droplets of the first volume and the ink droplets of the second volume.

13. A program for generating print data to be transmitted to an ink-jet printing apparatus that performs printing by scanning an ink-jet printhead over a print medium, the printhead having orifices for discharging ink droplets of a first volume and orifices for discharging ink droplets of a second volume smaller than the first volume, said program causing a computer to execute:

a selecting step of selecting a mode, which is to be used in printing, from a first mode in which printing in a prescribed area on the print medium is performed by scanning the ink-jet printhead a predetermined number of times and a second mode in which printing in the prescribed area is performed by scanning the ink-jet printhead a number of times greater than the predetermined number of times; and

a data processing step of executing data processing in such a manner that (A) in a case where the mode selected is the first mode, a maximum-density area, which is an area of maximum density with regard to a prescribed color, or a maximum-saturation area, which is an area of maximum saturation with regard to a prescribed color, will be printed using the ink droplets of the first volume rather than the ink droplets of the second volume, and (B) in a case where the selected mode is the second mode, the maximum-density area or maximum-saturation area will be printed using both the ink droplets of the first volume and the ink droplets of the second volume; and a step of transmitting data, which has been processed at said data processing step, to said ink-jet printing apparatus as print data.

14. A computer-readable storage medium storing a program for generating print data to be transmitted to an ink-jet printing apparatus that performs printing by scanning an ink-jet printhead over a print medium, the printhead having orifices for discharging ink droplets of a first volume and orifices for discharging ink droplets of a second volume smaller than the first volume, said program causing a computer to execute:

a selecting step of selecting a mode, which is to be used in printing, from a first mode in which

printing in a prescribed area on the print medium is performed by scanning the ink-jet printhead a predetermined number of times and a second mode in which printing in the prescribed area is performed by scanning the ink-jet printhead a number of times greater than the predetermined number of times; and

5 a data processing step of executing data processing in such a manner that (A) in a case where the mode selected is the first mode, a maximum-density area, which is an area of maximum density with regard

10 to a prescribed color, or a maximum-saturation area, which is an area of maximum saturation with regard to a prescribed color, will be printed using the ink droplets of the first volume rather than the ink

15 droplets of the second volume, and (B) in a case where the selected mode is the second mode, the maximum-density area or maximum-saturation area will be printed using both the ink droplets of the first volume and the ink droplets of the second volume; and

20 a step of transmitting data, which has been processed at said data processing step, to said ink-jet printing apparatus as print data.

15. A printer driver, which is implemented by a computer connectable to an ink-jet printing apparatus,

25 for driving said printing apparatus in accordance with a default function via a bi-directional interface, said printing apparatus performing printing by

scanning a carriage for mounting an ink-jet printhead over a print medium, the printhead having orifices for discharging ink droplets of a first volume and orifices for discharging ink droplets of a second
5 volume smaller than the first volume, and said printing apparatus having a first mode for high-speed printing and a second mode for high-quality printing, said printer driver comprising:

program code corresponding to a mode selecting
10 step for allowing a user to select whether specified image data should be printed in the first mode or the second mode; and

program code corresponding to a converting step of converting the image data to the print data in
15 accordance with the mode selected at said mode selecting step;

said converting step including a setting step of making a setting in such a manner that a number of ink droplets of the second volume used in printing an area
20 of a high density or high saturation in regard to a prescribed color in the first mode will be less than a number of ink droplets of the second volume used in printing this area in the second mode.